JUN 16 2014

K140317- EmbryoGen®

510(K) SUMMARY

Summary of Safety and Effectiveness Information
Supporting a Substantially Equivalent Determination

Submitted by: ORIGIO a/s
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Date Submitted: June 04, 2014

Device Identification

Trade name: EmbryoGen® (Cat. No. 1204)

Common name: EmbryoGen® (Cat. No. 1204)

Classification name: Reproductive media and supplements (21 CFR 884.6180, Product Code MQL)

Predicate devices:
EmbryoGen® (Cat. No. 1203) (K120136)

Description
EmbryoGen® (1204) is a modification of EmbryoGen® (1203) (K120136), where the base medium has been changed from EmbryoAssist® (K080473) to the new ORIGIO Sequential Cleav™ (K133912) medium. EmbryoGen® (1204) contains GM-CSF (Granulocyte macrophage- colony stimulating factor), in the same concentration as EmbryoGen® (1203).

EmbryoGen® (1204) is an aseptically filtered, colorless, non viscous solution, which is ready to use by professionals within assisted reproduction. EmbryoGen® (1204) is contained in 3 ml transparent glass bottles with white polypropylene caps, available in a single piece card board box, individually labeled and with instruction for use provided as a package insert.

Indication for use
EmbryoGen® is for culture of human embryos until the 2-8 cell stage. EmbryoGen® can also be used for embryo transfer at day 2 or 3.

The indication for use for EmbryoGen® (1204) has been narrowed and does not include fertilization as EmbryoGen (1203). The indication for EmbryoGen® (1204) is considered comparable to the predicate since both media are for culture until 2-8 cell stage including human embryo transfer. Thus the reduction in indication does not represent a new intended use nor does it pose any safety or effectiveness issues.

Technological Characteristics

Table 1 compares the technological characteristics of EmbryoGen® (1204) to the predicate EmbryoGen® (1203). Both similarities and differences are illustrated.

Table 1. Comparison of EmbryoGen® (1204) and the predicate EmbryoGen® (1203).

Product	EmbryoGen® (1204)	EmbryoGen® (1203)
Indication for use	EmbryoGen® is for culture of human embryos until the 2-8 cell stage. EmbryoGen® can also be used for embryo transfer at day 2 or 3.	EmbryoGen® is for fertilization and culture until 2-8 cell stage. EmbryoGen® can also be used for embryo transfer at day 2 or 3.
Product specification		
pH	7.2-7.4	7.3-7.5
Osmolality (mOsm/kg)	272-288	272-288
Endotoxin (EU/mL)	<0.15	<0.15
Aseptically filtered	X	X
1-cell MEA	≥80%	≥80%
GM-CSF ELISA test	>80%	>80%
GM-CFS potency (TF-1 cell assay)	80-125%	80-125%
Base Medium		
Physiological salts	X	X
Bicarbonate	X	X
HEPES	-	X
Glucose, lactate, pyruvate	X	X
Amino Acids	21 amino acids	11 amino acids
EDTA	X	X
Vitamins	Ca-pantothenate, Folic acid	Mixture of 10 vitamins
Sodium Hyaluronate	X	-
Syntetic Serum Replacement (SSR)	-	X
Protein source		
HSA Protein Supplementation	5 mg/mL	2 mg/mL
Drugs		
Gentamicin sulphate	0.01 mg/mL	0.01 mg/mL
Insulin[1]	-	0.51 µg/mL

Product	EmbryoGen® (1204)	EmbryoGen® (1203)
Recombinant human GM-CSF	2 ng/mL	2 ng/mL

[1]Insulin is a component in SSR®

The technological characteristics of EmbryoGen® (1204) are comparable to those of the predicate device. The differences are all in the base medium which is identical to the cleared ORIGIO® Sequential Cleav™ (K1333912) with the same intended use as EmbryoGen (1204). The main differences between EmbryoGen (1204) and EmbryoGen (1203) are:

- Synthetic Serum Replacement (SSR®): SSR has been removed in EmbryoGen (1204). SSR is a metal ion buffer primarily containing a balanced mixture of trace elements and human recombinant insulin . The majority of the commercially available ART media do not contain SSR or similar components. Moreover, as EmbryoGen (1204) is identical in formulation to the cleared ORIGIO Sequential Cleav (K1333912) which also does not contain SSR, it does not represent a new technology.
- EDTA: The concentration of EDTA is decreased compared to EmbryoGen® (1203) but is identical to the EDTA concentration in ORIGIO® Sequential Cleav™(K1333912). A decreased EDTA concentration in EmbryoGen® (1204) therefore do not represent a new technology
- Human Serum Albumin (HSA): EmbryoGen® (1204) contains 5 mg/mL HSA compared to 2 mg/mL HSA in EmbryoGen® (1203). The majority of commercially available culture media with the same intended use including ORIGIO® Sequential Cleav™ (K1333912) contain 5 mg/mL HSA and thus, do not represent a new technology.
- Amino Acids: EmbryoGen® (1204) contains 21 amino acids (both non-essential and essential amino acids), whereas EmbryoGen® (1203) contains 11 non-essential amino acids only. EmbryoGen® (1204) are equivalent to the cleared ORIGIO® Sequential Cleav™(K1333912) in regards of the different amino acids as well as concentration and thus, do not represent a new technology.
- Vitamins: EmbryoGen® (1204) contains the vitamins folic acid and calcium pantothenate in similar concentration range as predicate and other cleared ART media (ORIGIO® Sequential Cleav™ (K1333912)). Thus, folic acid and calcium pantothenate have a history of use in other ART media and do not represent a new technology
- Sodium hyaluronate: EmbryoGen® (1204) contains sodium hyaluronate whereas EmbryoGen ®(1203) does not. The concentration of sodium hyaluronate is 0.05 g/l which is in the range found in other commercial IVF media with the same intended use(ORIGIO® Sequential Cleav™ (K1333912)).

The technological characteristics of EmbryoGen® (1204) are comparable to the predicate device, do not impact substantial equivalence, and do not raise new types of safety or effectiveness questions.

Performance data

The product specifications for EmbryoGen® (1204) and EmbryoGen® (1203) are similar regarding sterility, endotoxin, osmolality, GM-CSF ELISA test, GM-CSF potency (TF-1 cell assay) and Mouse Embryo Assay (MEA) test.

Regarding the pH, the specification limit is a little lower for EmbryoGen® (1204) than EmbryoGen® (1203). However, the specification for EmbryoGen® (1204) is identical to the pH specification for ORIGIO® Sequential Cleav™ (K1333912) with the identical indication for use for culture of human

embryos until 2-8 cell stage and embryo transfer. Thus, the pH specification for EmbryoGen® (1204) does not raise any safety concerns.

The shelf life of EmbryoGen® has been validated in stability studies to 26 weeks. The parameters which have been tested in the stability studies through shelf life includes pH, osmolality, endotoxin, HSA concentration, MEA, GM-CSF ELISA, GM-CSF potency (TF-1 Cell assay) and sterility.

In general, EmbryoGen® (1204) medium is subject to the same control methods and, to a significant degree, contain the same components as the predicate device EmbryoGen® (1203). EmbryoGen® (1204) has similar handling procedures and storage conditions. Therefore, EmbryoGen® (1204) is considered substantially equivalent to the predicate device EmbryoGen® (1203) (K133912).

Biocompatibility

EmbryoGen® (1204) is categorized as a medium in direct contact with embryos until 2-8 cell stage. Since EmbryoGen® (1204) can also be used for human embryo transfer, it is also in direct contact with the uterus (patient). Biocompatibility testing was conducted on EmbryoGen® per ISO 10993-1:2009 and included assessments of cytotoxicity, sensitization, and irritation. Results of these studies demonstrated that EmbryoGen® materials were biocompatible. EmbryoGen® (1204) is therefore considered safe for culture of human embryos as well as transfer of embryos to the patient (uterus).

Conclusion

The conclusion from the performance and safety data, intended use comparison, product formulation comparison and test specification comparison, demonstrates that EmbryoGen® (1204) is suitable for its intended use, and that the technological characteristics are substantially equivalent to the predicate device EmbryoGen® (1203) in which substantial equivalence has been demonstrated.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002

June 16, 2014

Origio A/S
Tove Kjær
Director Corporate Regulatory Affairs
Knardrupvej 2
2760 Måløv
Denmark

Re: K140317
Trade/Device Name: EmbryoGen®
Regulation Number: 21 CFR§ 884.6180
Regulation Name: Reproductive media and supplements
Regulatory Class: II
Product Code: MQL
Dated: March 17, 2014
Received: March 20, 2014

Dear Tove Kjær,

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies.

You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucm115809.htm for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Herbert P. Lerner -S

for
Benjamin R. Fisher, Ph.D.
Director
Division of Reproductive, Gastro-Renal,
and Urological Devices
Office of Device Evaluation
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: December 31, 2013
See PRA Statement on last page.

510(k) Number *(if known)*
K140317

Device Name
EmbryoGen®

Indications for Use *(Describe)*
EmbryoGen® is for culture of human embryos until the 2-8 cell stage.
EmbryoGen® can also be used for embryo transfer at day 2 or 3.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

PLEASE DO NOT WRITE BELOW THIS LINE – CONTINUE ON A SEPARATE PAGE IF NEEDED.

FOR FDA USE ONLY

Concurrence of Center for Devices and Radiological Health (CDRH) *(Signature)*

Herbert P. Lerner -S
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